

What is claimed is:

- 1           1.       A method for repairing a photomask by removing a residual defect in the  
2 photomask, the method comprising removing the defect area by gallium chelation with a water-  
3 soluble amine polymer.  
1
- 2           2.       The method as recited in claim 1, wherein said defect is causative of a partial  
3 deterioration in light transmittance of the photomask in its gallium-implanted defect area and an  
4 area around the gallium-implanted defect area to restore the light transmittance of said areas in  
5 the photomask.
- 1           3.       The method as recited in claim 1, wherein, in the repair of the photomask, assist  
2 gas enhances the etching simultaneously with the focused ion beam irradiation.
- 1           4.       The method as recited in claim 1, wherein the photomask is a phase shift  
2 photomask.
- 1           5.       The method as recited in claim 1, wherein the pH of the defect area to be treated  
2 is about 1-6.
- 1           6.       The method as recited in claim 5, wherein the pH of the defect area to be treated  
2 is about 4.
- 1           7.       The method as recited in claim 1, wherein the molecular weight of the water-  
2 soluble amine polymer is about 23,000.